

~~CONFIDENTIAL~~February 10th, 1959COCOM Document No. 3415.49/2COORDINATING COMMITTEE

5 General

RECORD OF DISCUSSIONONTHE REDEFINITION OF ITEM 1549(a): PHOTOMULTIPLIER TUBES29th January, 1959

Present: Belgium(Luxembourg), Canada, Denmark, France, Germany, Italy,
Japan, Notherlands, Norway, Turkey, United Kingdom, United States.

References: COCOM 3300; COCOM Documents 3015.49/1 and 3415.49/1.

1. The CHAIRMAN invited Delegates to give their views on the proposal submitted by the French Delegation on the 16th January.
2. The GERMAN Delegate stated that his authorities would have preferred to maintain the item as at present defined. They had no objection, however, to changing the colour temperature figure from 2,350° to 2,850° K provided that the sensitivity characteristics relating to the latter were changed as had been proposed by the French Delegation.
3. The NETHERLANDS Delegate stated that his authorities were experiencing some difficulty in accepting the French proposal. They considered that the blackening of the glass to which the French expert had referred might be prevented if instead of 2,850° a colour temperature of 2,600° K were fixed in combination with a sensitivity exceeding 65 microamperes per Lumen. The French proposal had included a suggestion as to a figure between 80 and 100 microamperes; the Netherlands authorities felt that this might be slightly too high. If the figure of 2,850° were accepted, the Netherlands experts believed that this should be combined with a sensitivity figure of 70 microamperes per Lumen.
4. The UNITED STATES Delegate stated that he had earlier accepted the United Kingdom proposal, which had been construed simply as a correction.
5. The ITALIAN Delegate stated that he had received instructions to join the majority, if any.
6. The FRENCH expert stated that in the production of a photomultiplier tube efforts were made to obtain a given sensitivity corresponding to a given colour temperature. This sensitivity was not a constant, but varied with the different colour temperatures used for the measuring operations. Thus, for one photomultiplier tube there was a wide range of sensitivities corresponding to a wide range of colour*temperature of 2,350° K. One Delegation now proposed the figure of 2,850° K. The expert said he welcome the views of other Delegations as to the sensitivity figures which should correspond to one or the other of the colour temperatures mentioned.
7. The GERMAN Delegate stated that when this matter had first been discussed the Committee had had in mind something specific which they wished to cover in the definition. If now, for domestic reasons, one Delegation desired to change these figures or to have alternative figures, the German Delegation would raise no objection as long as the definition covered only what had been in mind at the outset.

* temperatures used for measurements. The Committee had selected the

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8. The UNITED KINGDOM Delegate stated that it was the contention of his authorities that the figure of $2,850^{\circ}$ ought to have been written into the definition in the summer and that for such a temperature the proper sensitivity figure was 60 microamperes per Lumen. The only suggestion his Delegation had put forward on the 15th December was that the figure of $2,350^{\circ}$ should be changed to $2,850^{\circ}$. They had made no suggestion at all about changing the sensitivity figure in any way.

9. Replying next to the point raised by his German colleague, the United Kingdom Delegate stated that his Delegation considered that the suggestion they had made on the 15th December did not alter the position at all. No change in coverage had been proposed, but merely a correction of the figure appearing in the definition.

10. The FRENCH expert pointed out that the United Kingdom Delegation had proposed to raise the colour temperature to $2,850^{\circ}$ but to maintain the sensitivity figure at 60 microamperes per Lumen; in that case the scope of the embargo would be increased. That had not been the Committee's intention last May, and it did not, in the view of the French Delegation, seem necessary now. The French Delegation could have accepted the United Kingdom proposal if sensitivity curves were constant, but that was not the case, and if it were desired to maintain the scope of the definition unchanged, then the sensitivity should be raised to the figure of 100 microamperes per Lumen.

11. The CHAIRMAN concluded from what had been said so far that agreement could only be reached to change the colour temperature to $2,850^{\circ}$ if all Delegations accepted a change in the sensitivity figures too.

12. The FRENCH expert recalled that when this definition had been studied in the summer he had quoted as a reference a photomultiplier tube manufactured in the Soviet Bloc by the Funkwerk (Erfurt) in Eastern Germany, whose characteristics, for the Type 2740, were:

12 stages:

Photocathode surface of 10 sq. cms. and

Sensitivity 120 microamperes per Lumen for a colour temperature of $2,350^{\circ}$ K.

This type was equipped with a caesium-antimony photocathode. When Item 1549 had been drafted it had been agreed that a sensitivity of half of this would be suitable - and that was why the figure of 60 microamperes per Lumen had been selected.

13. The CHAIRMAN asked that Delegations should be prepared, when this matter was next discussed, either to agree to leave the present definition unchanged or to be prepared to accept the change to $2,850^{\circ}$ accompanied by a change in the sensitivity figures.

14. It was AGREED to resume discussion on the 12th February.

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